

Isotope Explorer Version 2.0

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Isotope Explorer is a Windows C++ application for searching and displaying the Evaluated Nuclear Structure Data File (ENSDF) and Nuclear Science Reference File (NSR). Isotope Explorer was first released in 1994 (formerly VuENSDF), and Version 2.0 will be released in early 1998. The program has three operating modes, NUCLEUS, CHART, and REFERENCE.

In NUCLEUS mode, Isotope Explorer can display ENSDF data that is downloaded directly from the Isotopes Project server on the WWW or from a local database such as the *Table of Isotopes* CD-ROM. Data can be displayed as level-scheme drawings, tables with comments similar to those in Nuclear Data Sheets, graphically, or as text files. Data can be filtered for display by level properties, nuclear band configurations, and by nuclear dataset name. Special features include γ -ray coincidence selection, table sorting by column, and hypertext links between table comments and footnotes. Tables can be edited to show selected information, and drawings can be modified to user specifications. Plots of level energy versus spin or rotational moments can be displayed. Both print preview and printing capabilities are supported.

In CHART mode Isotope Explorer can display data from an experimental isotope/isomer database, a theoretical database by Møller *et al*³, ENSDF, or user-designed databases, on a chart of

the nuclides drawing. Chart isotopes can be colored by data values under full user control. A script language is available for establishing functional relationships between data quantities and for searching the ENSDF database. The results of calculations and ENSDF searches can be displayed on the chart. Clicking on an isotope box can display either the properties associated with that nuclide or show its decay to stability through the chart. Sample charts colored by half-life, spin/parity, comparison of liquid drop model calculation to experiment, search for γ -rays in a narrow energy range, and other topics are provided. Charts can be readily modified by the user, saved on disk, and printed.

In REFERENCE mode the Isotope Explorer can display the keyword abstracts from the NSR file for references in ENSDF datasets or specific NSR key numbers. Reference searches can also be made by Author name.

For more information on Isotope Explorer, the Internet tour "nuclear data a mouse-click away" is available on the WWW at <http://ie.lbl.gov/isoexpl/isoexpl.htm> Free download information, manuals, and sample charts are also available at that address.

Footnotes and References

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³P. Møller, J.R. Nix, and K.-L. Kratz, LANL Report LA-UR-94-3898(1994).